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EXAMINER	
KADING, JOSHUA A	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/837,222	LIN, WEI	
	Examiner	Art Unit	
	Joshua Kading	2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-67 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-9,11-18,21-28,31-43,45-51,54-62 and 65-67 is/are rejected.

7)☒ Claim(s) 10,19,20,29,30,44,52,53,63 and 64 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 19 April 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Oath/Declaration

The Oath and Declaration is objected to because of the following informality: The provisional application serial number claimed as priority is incorrect. The correct serial number is --60/269,381--.

Appropriate correction is required.

Specification

The disclosure is objected to because of the following informality: Specification, page 1, paragraph 2, line 2 has the wrong serial number for the provisional application claimed as priority. The correct serial number is --60/269,381--.

Appropriate correction is required.

Claim Objections

Claims 11, 12, and 13 are objected to because of the following informalities:

Claim 11, line 2 states "the received data frame". There is no antecedent basis for this limitation. Therefore, it should be changed to --a received data frame--.

Claim 12, line 4 states "the frame classifier...the FCE". There is no antecedent basis for this limitation. Therefore, it should be changed to --a frame classifier...an FCE--.

Claim 12, line 5 states "the FSE". There is no antecedent basis for this limitation. Therefore, it should be changed to --an FSE--.

Claim 13, line 2 states "the data frame". There is no antecedent basis for this limitation. Therefore, it should be changed to --a data frame--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16, 26, 49, and 59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 16, 26, 49, and 59, applicant uses the term "a side-stream" in the claim language and in the specification on page 21, paragraph 52, line 1. It is unclear from the specification or the claim language what "a side-stream" is. The MPEP gives the applicant permission to be his/her own lexicographer, but requires that any terms not known to one skilled in the art be defined clearly in the specification. See MPEP 2106.II.(C). However, applicant has not done this with regard to the term "a side-stream". What is a "side-stream"? Is it similar to a downstream as implied by the specification? Or is it a different kind of stream used in communication?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6, 11, 13-17, 21-23, 27, 34-40, 45-50, and 54-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al. (U.S. Patent 6,765,927 B1) in view of Bakre et al. (U.S. Patent 6,671,276 B1).

Regarding claim 1, Martin discloses "an out-of-band signaling model media control (MC) terminal for a...network, the MC terminal comprising:

a Quality of Service (QoS) management entity (QME) receiving an end-to-end QoS message characterizing a down-stream session for a user application (figure 2, element 240 which is further described in col. 4, lines 3-26 where the RSVP message is an out-of-band QoS message sent to the QME to request the downstream path as seen in figure 1), the end-to-end QoS message including at least one QoS parameter set that is expressed at layer 3 and higher of an ISO/IEC basic reference model of Open Systems Interconnection (OSI) (ISO/IEC 7498-1) and is to be passed down to layer 2 of the MC terminal for enabling QoS traffic transport for the session (col. 4, lines 59-67 where it is expressly stated that the RSVP message is expressed at layer 3 and layer 2 through the encapsulation of the packet at each respective layer)...

However, Martin does now wholly disclose what Bakre discloses, "an admission control entity (ACE) performing an admission control decision relating to the session based on the end-to-end QoS message characterizing the QoS stream and concurrent bandwidth usage of the...network (col. 9, lines 27-30 where the CAC is the functional

equivalent to the ACE in that they are both used to admit a newly requested flow based on available resources)."

Further, Martin and Bakre do not explicitly disclose that one (or more) of the end entities of the flow is part of an HPNA. However, Martin implies that the end entities in figure 1, element 110 are part of a LAN and are communicating over a backbone network (see col. 2, lines 43-52). Since an HPNA is functionally equivalent to a LAN (albeit on a very small scale since it is restricted to a home environment), it follows that it would have been obvious to one with ordinary skill in the art at the time of invention to have the LAN containing the entities be an HPNA as a matter of design choice. The type of LAN is irrelevant in the claimed invention because the QoS message is reserving an end-to-end flow over the backbone network and as long as that is accomplished it doesn't matter what type of network is attached to the edge switches, as long as it contains the communicative entity.

It would have been obvious to one with ordinary skill in the art at the time of invention to have an ACE and the HPNA for the purpose of confirming that there are enough resources available to properly make the connection as requested. The motivation for checking the resources available is so that when communication begins there is a high expectation, if not complete expectation on the requesting entity's end that the resources (usually paid for) will be available and the data will get through to the other side (Bakre, col. 9, lines 27-33).

Claim 34 is rejected for the same reasons and motivation as claim 1 because the method of claim 34 is implemented by the varying components of the apparatus of claim 1 and thus can be rejected similarly.

Regarding claim 2, Martin and Bakre disclose the terminal of claim 1. However, Bakre lacks what Martin further discloses, "at least one of a resource control module (figure 2, element 242) and a policy control module (figure 2, element 243), the resource control module...performing at least one admission control decision relating to the session based on a resource permission (col. 4, lines 27-38 where although element 243 is labeled as a "QoS manager" it performs the same functions as the resource control module), and the policy control module...performing at least one admission control decision relating to the session based on a policy permission (col. 4, lines 29-33)." It should be further noted that although the resource and policy control modules are not explicitly placed in the "ACE" of Bakre, it is a matter of design choice to have them placed inside or outside the ACE. The same end result of an admission decision is achieved whether the control modules are inside the ACE or outside the ACE. It would have been obvious to one with ordinary skill in the art to include the resource control module and the policy control module for the same reasons and motivation as in claim 1.

Regarding claim 3, Martin and Bakre disclose the terminal of claim 1. However, Martin and Bakre both explicitly lack "the ACE is part of the QME". As with claim 2,

although the ACE is not explicitly part of the QME, the combination of Martin with Bakre give rise to a "terminal" that achieves the same end results as having the ACE in the QME. Thus it would have been obvious to one with ordinary skill in the art at the time of invention to include the ACE in the QME as a matter of design choice. The motivation being the same reasons and motivation as in claim 1.

Regarding claim 4, Martin and Bakre disclose the terminal of claim 1. However, Bakre lacks what Martin further discloses, "the end-to-end QoS message characterizing the session is a request for admitting the session to the HPNA network (col. 4, lines 12-17 where an RSVP message is, by its very nature, a reservation request)...and wherein the QME, responsive to an admitted session, establishes at least one QoS stream in layer 2 of the MC terminal for transporting the traffic of the session between logical link control (LLC) sublayer entities within the HPNA network (col. 4, lines 33-38 where the flow setups are setup on the edge switch, which is a layer 2 device)."

Martin also lacks what Bakre further discloses, "...the ACE, responsive to the end to-end QoS message, rejects or admits the requesting session to the HPNA network based on an outcome of the admission control decision (col. 9, lines 27-30)..."

It would have been obvious to one with ordinary skill in the art to include the ACE rejecting or admitting a session based on an admission control decision for the same reasons and motivation as in claim 1.

Claim 37 is rejected for the same reasons and motivation as claim 4 because the method of claim 37 is implemented by the varying components of the apparatus of claim 4 and thus can be rejected similarly.

Regarding claim 5, Martin and Bakre disclose the terminal of claim 4. However, Bakre lacks what Martin discloses, "the QME assigns a QoS stream identifier (ID) to the admitted session (figure 3A, element 330 described in col. 4, lines 67-col. 5, lines 1-3 where the RSVP is part of the QoS stream)." It would have been obvious to one with ordinary skill in the art to include a QoS ID for the same reasons and motivation as in claim 4.

Claim 38 is rejected for the same reasons and motivation as claim 5 because the method of claim 35 is implemented by the varying components of the apparatus of claim 5 and thus can be rejected similarly.

Regarding claim 11, Martin and Bakre disclose the terminal of claim 5. However, Bakre lacks what Martin further discloses, "[a] received data frame is part of a down-stream session (figure 1, where the RSVP path is a downstream path the was established as per the RSVP request)." It would have been obvious to one with ordinary skill in the art to have the data in a downstream direction for the same reasons and motivation as in claim 5.

Regarding claim 13, Martin and Bakre disclose the terminal of claim 5. However, Bakre lacks what Martin further discloses, "the destination for the data frame is at least one out-of-band signaling model non-media control (non-MC) terminal (figure 1, element 160 which contains the devices of figure 2 and as stated in claim 1, the networks that contain the end entities may or may not be an HPNA, which would dictate whether or not the terminal is MC or non-MC, thus the terminal type is dictated by the choice of network)." It would have been obvious to one with ordinary skill in the art to have the destination consist of a non-MC terminal for the same reasons and motivation as in claim 5.

Regarding claims 21 and 54, Martin and Bakre disclose the terminal of claim 1 and the method of claim 34. However, Martin lacks what Bakre further discloses, "the QoS stream is a multimedia session QOS stream (col. 1, lines 37-43)." It would have been obvious to one with ordinary skill in the art to have the QoS stream consist of multimedia for the same reasons and motivation as in claims 1 and 34.

Regarding claims 22 and 55, Martin and Bakre disclose the terminal of claim 1 and the method of claim 34. However, Martin lacks what Bakre further discloses, "the QoS stream is a voice session QoS stream (col. 1, lines 37-43 although Bakre does not specifically mention voice as the multimedia session, it is well known in the art that multimedia applications include voice sessions, which are also sensitive to end-to-end

delay and jitter)." It would have been obvious to one with ordinary skill in the art to include the voice sessions for the same reasons and motivation as in claims 1 and 34.

Regarding claims 23 and 56, Martin and Bakre disclose the terminal of claim 1 and the method of claim 34. However, Bakre lacks what Martin further discloses, "the QoS stream is a data session QoS stream (col. 4, lines 39-43 where all information passed over the network is some type of data, thus the RSVP is used for a data session QoS)." It would have been obvious to one with ordinary skill in the art to include the data session QoS for the same reasons and motivation as in claims 1 and 34.

Regarding claim 6, Martin and Bakre disclose the terminal of claim 1. However, Bakre lacks what Martin further discloses, "a frame classification entity (FCE) located at a logical link control (LLC) sublayer of the MC terminal (figure 2, element 241 where the classifier is part of the switch which consists of the LLC layer), the FCE receiving a data frame for the down-stream session, the FCE classifying the received data frame for a media access control (MAC) sublayer based on QoS information associated with the received data frame and associating the classified data frame with a QoS stream queue physically located at the MC terminal and corresponding to a classification of the data frame (col. 4, lines 3-38 where the RSVP request comes from the network layer of the system and the classifier then classifies the flow in the appropriate queue); and a frame scheduling entity (FSE) located at the MAC sublayer of the MC terminal (figure 2, element 244 functions as the FSE because it is directly involved with establishing flow

associations on the network devices as read in col. 4, lines 35-37, although it is not specifically mentioned that element 244 is located at the MAC sublayer, as a matter of design choice it could be strongly suggested that because element 244 controls and is directly connected to the network interfaces (which function as MAC interfaces), element 244 is located at the MAC sublayer), the FSE scheduling transmission of the data frame to a destination for the data frame based on a QoS requirement associated with the down-stream QoS stream (col. 4, lines 27-38)."

It would have been obvious to one with ordinary skill in the art to include the FCE and FSE for the same reasons and motivation as in claim 1.

Regarding claim 27, Martin and Bakre disclose the terminal of claim 23. However, Bakre lacks what Martin further discloses, "the non-MC terminal further includes a frame scheduling entity (FSE) located at the MAC sublayer of the non-MC terminal (figure 2, element 244 functions as the FSE because it is directly involved with establishing flow associations on the network devices as read in col. 4, lines 35-37, although it is not specifically mentioned that element 244 is located at the MAC sublayer, as a matter of design choice it could be strongly suggested that because element 244 controls and is directly connected to the network interfaces (which function as MAC interfaces), element 244 is located at the MAC sublayer), the FSE of the non-MC terminal scheduling transmission of the data frame received from the higher layer of the non-MC terminal based on QoS information associated with the data frame received from the higher layer of the non-MC terminal (col. 4, lines 27-38)."

It would have been obvious to one with ordinary skill in the art to include the FSE for the same reasons and motivation as in claim 1.

Regarding claim 35, Martin and Bakre disclose the method of claim 34. However, Bakre lacks what Martin further discloses, "the step of performing the admission control decision relating to the down-stream session based on a resource permission (col. 4, lines 27-38 where although element 243 is labeled as a "QoS manager" it performs the same functions as a resource module to use a resource permission to allow a flow)." It would have been obvious to one with ordinary skill in the art to include the admission control to based on a resource permission for the same reasons and motivation as in claim 34.

Regarding claim 36, Martin and Bakre disclose the method of claim 34. However, Bakre lacks what Martin further discloses, "the step of performing the admission control decision relating to the down-stream session based on a policy permission (col. 4, lines 29-33)." It would have been obvious to one with ordinary skill in the art to include the admission control to based on a policy permission for the same reasons and motivation as in claim 34.

Regarding claim 39, Martin and Bakre disclose the method of claim 34. However, Bakre lacks what Martin further discloses, "receiving a data frame for the down-stream session at a logical link control (LLC) layer of the MC terminal, the data frame being

received from a higher layer of the MC terminal than the LLC layer of the MC terminal (col. 4, lines 1-38 where the request comes from the network layer of the system and is received by the network interfaces which are equivalent to LLC layer interfaces); classifying the data frame received from the higher layer of the MC terminal for a media access control (MAC) layer of the MC terminal based on QOS information associated with the data frame received from the higher layer of the MC terminal (col. 4, lines 27-38, although it is not specifically mentioned, the network interfaces strongly imply that the data comes from the network layer and enters the switch on the MAC sublayer); and associating the classified data frame with a QOS stream queue corresponding to a classification of the data frame and associated with the QOS stream in layer 2 of the MC terminal (col. 4, lines 27-38)."

It would have been obvious to one with ordinary skill in the art to include the classifying of the data and associating the data with a queue for the same reasons and motivation as in claim 34.

Regarding claim 40, Martin and Bakre disclose the method of claim 34. However, Bakre lacks what Martin further discloses, "a step of scheduling transmission of the data frame to a destination for the data frame based on a QOS requirement associated with the down-stream QOS stream (col. 4, lines 27-38 where the QoS driver is used to associate flow queues with the network interfaces thus establishing a schedule)." It would have been obvious to one with ordinary skill in the art to include the scheduling of the data for the same reasons and motivation as in claim 34.

Regarding claim 45, Martin and Bakre disclose the method of claim 39. However, Bakre lacks what Martin further discloses, "the down-stream session is a new session (col. 4, lines 12-17 where it is assumed that an RSVP Resv message is sent in response to a desire to setup a new session)." It would have been obvious to one with ordinary skill in the art to include the establishing of a new session for the same reasons and motivation as in claim 39.

Regarding claim 46, Martin and Bakre disclose the method of claim 39. However, Bakre lacks what Martin discloses, "the destination for the data frame is at least one out-of-band signaling model non-media control (non-MC) terminal (figure 1, element 140 is the destination of the RSVP out-of-band signal)." It would have been obvious to one with ordinary skill in the art to include the destination of the out-of-band signalling for the same reasons and motivation as in claim 39.

Regarding claims 14 and 47, Martin and Bakre disclose the terminal of claim 13 and the method of claim 46. However, Bakre lacks what Martin discloses, "each non-MC terminal includes an FCE located at an LLC sublayer of the non-MC terminal (figure 2, element 241 where the classifier is part of the switch which consists of the LLC layer), the FCE of at least one non-MC terminal receiving a data frame from a higher layer of the non-MC terminal than the LLC sublayer of the non-MC terminal, the data frame being part of a session originating at the non-MC terminal (col. 4, lines 3-27 where the

RSVP request comes from the network which includes other non-MC terminals), the FCE of the non-MC terminal classifying the data frame received from the higher layer of the non-MC terminal for a MAC sublayer of the non-MC terminal based on frame classification information contained in the received data frame (col. 4, lines 27-38, although the MAC sublayer is not specifically mentioned, as a matter of design choice it could be strongly suggested that because the network interfaces function as MAC interfaces because they are the receive and send the data to and from the network), the FCE of the non-MC terminal associating the classified data frame with a QOS stream queue corresponding to a classification of the data frame received from the higher layer of the non-MC terminal (col. 4, lines 27-38)."

It would have been obvious to one with ordinary skill in the art to include the FCE for the same reasons and motivation as in claims 13 and 46.

Regarding claims 15 and 48, Martin and Bakre disclose the terminal of claim 14 and the method of claim 47. However, Bakre lacks what Martin further discloses, "the data frame received from the higher layer of the non-MC terminal is part of an up-stream QOS stream (figure 1 where the paths setup between the terminals can signify both an up-stream and down-stream path, it merely depends which terminal is being reference with respect to the flow of data)." It would have been obvious to one with ordinary skill in the art to have the up-stream path for the same reasons and motivation as in claims 14 and 47.

It should be noted that although applicant does not specifically define "side-stream", it is assumed to be equivalent to down-stream as implied by the specification.

Regarding claims 16 and 49, Martin and Bakre disclose the terminal of claim 14 and the method of claim 47. However, Bakre lacks what Martin further discloses, "the data frame received from the higher layer of the non-MC terminal is part of a side-stream QoS stream (figure 1 where the paths setup between the terminals can signify both an up-stream and down-stream path, it merely depends which terminal is being reference with respect to the flow of data)." It would have been obvious to one with ordinary skill in the art to have the side-stream path for the same reasons and motivation as in claims 14 and 47.

Regarding claims 17 and 50, Martin and Bakre disclose the terminal of claim 14 and the method of claim 47. However, Bakre lacks what Martin discloses, "an FSE located at the MAC sublayer (figure 2, element 244 functions as the FSE because it is directly involved with establishing flow associations on the network devices as read in col. 4, lines 35-37, although it is not specifically mentioned that element 244 is located at the MAC sublayer, as a matter of design choice it could be strongly suggested that because element 244 controls and is directly connected to the network interfaces (which function as MAC interfaces), element 244 is located at the MAC sublayer)" and "scheduling transmission of a data frame based on QOS information associated with the data frame received from the higher layer of the non-MC terminal (col. 4, lines 33-38 where the QoS driver is used to establish flow queue associations or schedule the

transmission of the data flows)." It would have been obvious to one with ordinary skill in the art to have the scheduling for the same reasons and motivation as in claims 14 and 47.

Claims 7 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al. in view of Bakre et al. as applied to claims 6 and 34 above, and further in view of Elliott et al. (U.S. Patent 5,867,495).

Regarding claims 7 and 41, Martin and Bakre disclose the terminal of claim 6 and the method of claim 34. However, Martin and Bakre lack what Elliott discloses, "a frame classification table containing at least one entry having a frame classifier that is used for classifying the data frame received for the down-stream session (col. 18, lines 62-67 where the flows are classified according to priority)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the FCE table for the purpose of identifying specially prioritized data through the use of a classification table (Elliott, col. 18, lines 45-46). The motivation for identifying specially prioritized data is so that data requiring special priority is given the appropriate attention for processing and transmission, thus avoiding delays because lower priority data was handled first.

Claims 18, 28, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al. and Bakre et al. as applied to claims 17, 27, and 50 above, and further in view of Yuasa et al. (U.S. Patent 6,085,238).

Regarding claims 18, 28, and 51, Martin and Bakre disclose the terminals of claims 17 and 27, and the method of claim 50. However, Martin and Bakre lack what Yuasa discloses, "a frame scheduling table containing QOS scheduling information for the QOS stream queue associated with the classified data frame (figure 10 shows a scheduling table as described in col. 28, lines 10-24)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the frame scheduling table for the purpose of processing and transmitting packets according to a priority listed in the table. The motivation for processing and transmitting packets according to a priority is so that highly sensitive data (give a high priority) will not have to wait while lower priority is processed.

Claims 8, 9, 12, 42, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al., Bakre et al., and Elliott et al. as applied to claims 7 and 41 above, and further in view of Yuasa et al.

Regarding claims 8 and 42, Martin, Bakre, and Elliott disclose the terminal of claim 7 and the method of claim 41. However, Martin, Bakre, and Elliot lack what Yuasa discloses, "a frame scheduling table containing QOS scheduling information for the QOS stream queue associated with the classified data frame (figure 10 shows a scheduling table as described in col. 28, lines 10-24)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the frame scheduling table for the purpose of processing and transmitting packets according to a priority listed

in the table. The motivation for processing and transmitting packets according to a priority is so that highly sensitive data (give a high priority) will not have to wait while lower priority is processed.

Regarding claims 9 and 43, Martin, Bakre, Elliott, and Yuasa disclose the terminal of claim 8 and the method of claim 42. However, Martin, Bakre, and Elliott lack what Yuasa further discloses, "the QoS scheduling information includes a set of QoS parameter values (figure 10, where the "Segment Attributes" contain QoS parameter values such as the priority and added service), a QoS stream ID for the QoS stream of the classified data frame (figure 10, where the "Microsegment" section is used to identify the QoS stream for the data frame) and queue status information for the QoS stream queue (figure 10, where the "Port" section is a listing of the queues associated with ports, there status is indicated to have data in them ready for transmission or not)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the parameter values, the stream ID, and the queue status for the same reasons and motivation as in claims 8 and 42.

Regarding claim 12, Martin and Bakre disclose the terminal of claim 5, including "the down-stream session is a new session (Martin, col. 4, lines 12-17 where it is assumed that an RSVP Resv message is sent in response to a desire to setup a new session), and the QME assigns a QoS stream ID to the new down-stream session (col. 4, lines 27-33 where the flow identifier functions as the QoS stream ID), passes the QoS

stream ID and [a] frame classifier of the new session to [an] FCE (col. 4, lines 33-34), and passes the QoS stream ID and the QoS parameter values of the new session to [an] FSE (col. 4, lines 34-38 where the QoS driver functions as an FSE because it controls establishing of the flows ready for transmission)..."

However, Martin and Bakre lack what Elliott discloses, "wherein the FCE adds a new entry to the classification table corresponding to the new stream (col. 19, lines 21-29 where if an entry is entered into the table, it must be a new entry)..."

Further Martin, Bakre, and Elliott lack what Yuasa discloses, "wherein the FSE adds a new entry to the scheduling table corresponding to the new stream (col. 28, lines 10-24 where in the table as described, when the data is transmitted the information representing the queue in which the data was held, is no longer valid, so new data will take its place while it waits to be scheduled for transmission)."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the FCE and FSE tables for the purpose of scheduling higher priority data transmissions over lower priority data (Elliott, col. 18, lines 45-46 and Yuasa, col. 28, lines 10-24). The motivation for doing this is so that highly sensitive data (the higher priority data) will be processed and transmitted before the lower priority data, ensuring its timely arrival.

Claims 24-26, 31-33, 57-59, and 65-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al.

Regarding claim 24, Martin discloses "an out-of-band signaling model non-media control (non-MC) terminal for a...network, the non-MC terminal comprising:

a Quality of Service (QoS) stream queue located at a media access control (MAC) sublayer of the non-MC terminal (col. 4, lines 27-38 where the network interfaces function as the MAC sublayer in that they are the point of entry and exit for information to and from the network and switch 140 acts as the non-MC terminal), the QoS stream having at least one associated QoS parameter value (col. 4, lines 33-35 where the QoS flows indicate a QoS parameter value associated with the stream); and

an FCE located at an LLC sublayer of the non-MC terminal (figure 2, element 241 where the classifier is part of the switch which consists of the LLC layer), the FCE of the non-MC terminal receiving a data frame from a layer higher than the LLC layer of the non-MC terminal and classifying the received data frame for a MAC sublayer of the non-MC terminal based on QoS information associated with the received data frame (col. 4, lines 3-38 where the RSVP request comes for the network layer of the system and the classifier then classifies the flow in the appropriate queue), the FCE of the non-MC terminal associating the classified data frame with the QoS stream queue when a classification of the data frame corresponds to the at least one QoS parameter value associated with the QoS stream queue (col. 4, lines 27-38)."

However, Martin does not explicitly disclose the network is an HPNA. However, Martin implies that the end entities in figure 1 are part of a LAN and are communicating over a backbone network (see col. 2, lines 43-52). Since an HPNA is functionally equivalent to a LAN (albeit on a very small scale since it is restricted to a home

environment), it follows that it would have been obvious to one with ordinary skill in the art at the time of invention to have the LAN containing the entities be an HPNA as a matter of design choice. The type of LAN is irrelevant in the claimed invention because the QoS message is reserving an end-to-end flow over the backbone network and as long as that is accomplished it doesn't matter what type of network is attached to the edge switches, as long as it contains the communicative entity. The motivation for including an HPNA in the network is a matter of design choice and completely up to the designer.

Regarding claim 57, Martin discloses "a method for controlling media access in an out-of-band signaling model...network, the method comprising steps of:

forming a QoS stream queue located at a MAC sublayer of an out-of-band signaling model non-media control (non-MC) terminal (col. 4, lines 27-38 where the network interfaces function as the MAC sublayer in that they are the point of entry and exit for information to and from the network and switch 140 acts as the non-MC terminal), the QoS stream having at least one associated QoS parameter value (col. 4, lines 33-35 where the QoS flows indicate a QoS parameter value associated with the stream);

receiving a data frame at an LLC sublayer of the non-MC terminal from a layer higher than the LLC sublayer of the non-MC terminal (col. 4, lines 1-38 where the request comes from the network layer of the system and is received by the network interfaces which are located at the LLC sublayer);

classifying the data frame received from the higher layer of the non-MC terminal for a MAC sublayer of the non-MC terminal based on QoS information associated with the data frame received from the higher layer of the non-MC terminal (col. 4, lines 27-38, although it is not specifically mentioned, the network interfaces strongly imply that the data comes from the network layer and enters the switch on the MAC sublayer); and

associating the classified data frame with the QoS stream queue when a classification of the data frame corresponds to the at least one QoS parameter value associated with the QoS stream queue (col. 4, lines 27-38)."

However, Martin does not explicitly disclose the network is an HPNA. However, Martin implies that the end entities in figure 1 are part of a LAN and are communicating over a backbone network (see col. 2, lines 43-52). Since an HPNA is functionally equivalent to a LAN (albeit on a very small scale since it is restricted to a home environment), it follows that it would have been obvious to one with ordinary skill in the art at the time of invention to have the LAN containing the entities be an HPNA as a matter of design choice. The type of LAN is irrelevant in the claimed invention because the QoS message is reserving an end-to-end flow over the backbone network and as long as that is accomplished it doesn't matter what type of network is attached to the edge switches, as long as it contains the communicative entity. The motivation for including an HPNA in the network is a matter of design choice and completely up to the designer.

Regarding claims 25 and 58, Martin discloses the terminal of claim 24 and the method of claim 57. Although Martin does not explicitly disclose the HPNA network of claims 24 or 57, Martin does disclose "the data frame received from the higher layer of the non-MC terminal is part of an up-stream QOS stream (figure 1 where the paths setup between the terminals can signify both an up-stream and down-stream path, it merely depends which terminal is being reference with respect to the flow of data)." It would have been obvious to one with ordinary skill in the art to have the up-stream path for the same reasons and motivation as in claims 24 and 57.

It should be noted that although applicant does not specifically define "side-stream", it is assumed to be equivalent to down-stream as implied by the specification.

Regarding claims 26 and 59, Martin discloses the terminal of claim 24 and the method of claim 57. Although Martin does not explicitly disclose the HPNA network of claims 24 and 57, Martin does disclose "the data frame received from the higher layer of the non-MC terminal is part of a side-stream QoS stream (figure 1 where the paths setup between the terminals can signify both an up-stream and down-stream path, it merely depends which terminal is being reference with respect to the flow of data)." It would have been obvious to one with ordinary skill in the art to have the side-stream path for the same reasons and motivation as in claims 24 and 57.

Regarding claims 31 and 65, Martin discloses the terminal of claim 24 and the method of claim 57. Although Martin does not explicitly disclose the HPNA network of

claims 24 and 57, Martin does disclose "the QoS stream is a multimedia session QOS stream (col. 1, lines 37-43)." It would have been obvious to one with ordinary skill in the art to have the QoS stream consist of multimedia for the same reasons and motivation as in claims 24 and 57.

Regarding claims 32 and 66, Martin discloses the terminal of claim 24 and the method of claim 57. Although Martin does not explicitly disclose the HPNA network of claims 24 and 57, Martin does disclose "the QoS stream is a voice session QoS stream (col. 1, lines 37-43 although Bakre does not specifically mention voice as the multimedia session, it is well known in the art that multimedia applications include voice sessions, which are also sensitive to end-to-end delay and jitter)." It would have been obvious to one with ordinary skill in the art to include the voice sessions for the same reasons and motivation as in claims 24 and 57.

Regarding claims 33 and 67, Martin discloses the terminal of claim 24 and the method of claim 57. Although Martin does not explicitly disclose the HPNA network of claims 24 and 57, Martin does disclose "the QoS stream is a data session QoS stream (col. 4, lines 39-43 where all information passed over the network is some type of data, thus the RSVP is used for a data session QoS)." It would have been obvious to one with ordinary skill in the art to include the data session QoS for the same reasons and motivation as in claims 24 and 57.

Claims 60 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al. in view of Elliott et al.

Regarding claim 60, Martin discloses the method of claim 57. However, Martin lacks what Elliott discloses, "a frame classification table containing at least one entry having a frame classifier that is used for classifying the data frame received for the down-stream session (col. 18, lines 62-67 where the flows are classified according to priority)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the FCE table for the purpose of identifying specially prioritized data through the use of a classification table (Elliott, col. 18, lines 45-46). The motivation for identifying specially prioritized data is so that data requiring special priority is given the appropriate attention for processing and transmission, thus avoiding delays because lower priority data was handled first.

Regarding claim 61, Martin and Elliott disclose the method of claim 60. However, Elliott lacks what Martin further discloses, "scheduling transmission of a data frame based on QOS information associated with the data frame received from the higher layer of the non-MC terminal (col. 4, lines 33-38 where the QoS driver is used to establish flow queue associations or schedule the transmission of the data flows)." It would have been obvious to one with ordinary skill in the art to include the scheduling for the same reasons and motivation as in claim 60.

Claim 62 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al. and Elliott et al. as applied to claim 61 above, and further in view of Yuasa et al.

Regarding claim 62, Martin and Elliott disclose the method of claim 61. However, Martin and Elliott lack what Yuasa discloses, "a frame scheduling table containing QOS scheduling information for the QOS stream queue associated with the classified data frame (figure 10 shows a scheduling table as described in col. 28, lines 10-24)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the frame scheduling table for the purpose of processing and transmitting packets according to a priority listed in the table. The motivation for processing and transmitting packets according to a priority is so that highly sensitive data (give a high priority) will not have to wait while lower priority is processed.

Allowable Subject Matter

Claims 10, 19, 20, 29, 30, 44, 52, and 53 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Kading whose telephone number is (571) 272-3070. The examiner can normally be reached on M-F: 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Olms can be reached on (571) 272-3079. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Joshua Kading
Examiner
Art Unit 2661

August 31, 2004

KENNETH VANDERPUYE
PRIMARY EXAMINER